

54th Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics
Monday–Friday, June 5–9, 2023; Spokane, Washington

Session 1A: Graduate Student Symposium - Outstanding Answers to Outstanding Questions

8:55 AM–3:45 PM, Monday, June 5, 2023
Room: Ballroom 111 C

Chair: Heather Lewandowski, University of Colorado-Boulder

Abstract: 1A.00008 : Filming and viewing ultrafast motion inside molecules: What do we see and what can we learn?*

2:30 PM–3:45 PM

← Abstract

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Philip H Bucksbaum

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The electrons and atoms inside molecules can rearrange rapidly during photoexcitation or collisions, moving angstroms in a few femtoseconds or less. This non-classical many-body quantum evolution is far too small and too fast to be resolved in any imaging microscope, but if we could film it, what should we expect to see? New tools based on ultrafast lasers, electron accelerators, and x-ray free-electron lasers have now begun to record this motion with increasing detail, and for a growing array of atomic and molecular systems. Here I will attempt to answer the question, "So what?" What have we learned, and how are molecular movies guiding us toward future discoveries in AMO physics?

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